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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,322	06/11/2002	Paul Beard	537-1070	1544
23644	7590	07/13/2005	EXAMINER	
BARNES & THORNBURG P.O. BOX 2786 CHICAGO, IL 60690-2786			LEE, HWA S	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/088,322		BEARD ET AL.	
	Examiner		Art Unit	
	Andrew Hwa S. Lee		2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 16-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I (claims 1-15) in the reply filed on 4/11/05 is acknowledged.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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1. Claims 1-3,8-12 rejected under 35 U.S.C. 103(a) as being unpatentable over Ultrasonics Vol. 37 in view of Optics Letters Vol. 25, both authored by Wilkens and Koch and cited in Applicant's IDS).

Ultrasonics shows an optical multilayer detection array for ultrasonic measurements comprising:

a two-dimensional sensor head (multilayer structure) comprising a polymer film of substantially uniform thickness disposed over a substrate (fiber tip),

an interrogation signal source (laser), the interrogation signal extending across the area of the sensor head and being incident normally to the sensor head, the sensor head providing an optical output signal over the area of the sensor head in dependence on incident signals detected by the sensor, and

an optical sensing device (photodiode) arranged to receive the optical output signal from the sensor head at a location remote from the sensor head.

With regards to claim 2, Ultrasonics does not expressly show a two-dimensional photodetector array. Wilkens and Koch's later publication in Optics Letters show the use of a two dimensional photodetector array.

At the time of the invention, one of ordinary skill in the art would have modified the system shown in Ultrasonics to have the two dimensional photodetector array shown in Optics Letters. One of ordinary skill in the art would have done so for the high speed and resolution of the measurement (Please see the first paragraph of Optics Letters).

With regards to claim 3, please see Optics Letters, first paragraph.

With regards to claim 8, please the laser diode (LD)

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With regards to claims 9 and 10, please see elements PG and BBT.

With regards to claims 11 and 12, please see the microlens array MLS.

With regards to claim 14, it would be inherent that some adjustment is made so that the beam is directed in the proper angle to the sensor such as by an optical fiber, a mirror, or the arrangement of the beamsplitter.

2. Claims 4-7, are rejected under 35 U.S.C. 103(a) as being unpatentable over Ultrasonics and Optics Letters as applied to claims 1-3 above, and further in view of Beard et al (Applied Optics, cited in Applicant's IDS).

All the elements are shown as demonstrated above, but neither Ultrasonics nor Optics Letters do not show the properties of the polymer film.

Beard et al show an extrinsic optical fiber ultrasound sensor using a thin polymer film for a Fabry-Perot interferometer. At the time of the invention, one of ordinary skill in the art would have used the specifics of the polymer shown by Beard since the specifics are not shown by Ultrasonics, nor Optics Letters and Beard shows that the specifics shown give the working ranges for the polymer film.

Allowable Subject Matter

Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:
The prior art of record fails to show or to suggest an interferometer having all the elements as

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presently claimed wherein different angles of incidence are selected for different locations of the sensor head.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Hwa S. Lee whose telephone number is 571-272-2419. The examiner can normally be reached on Tue-Fr.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley Jr. can be reached on 571-272-2800 ext 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Andrew Hwa Lee
Primary Examiner
Art Unit 2877